**Mr. Alpert’s Robotics Class**

Thinking questions to be answered through the SunFounder Packet for Experiments 1, 2 and 3

You are to create a page to be put in your Arduino three ring binder. On this page, you are to copy each of the following questions on each experiment as you do it and answer the question in your own handwriting. As each of you will be working at your own pace, there is no absolute time for completion of these items, however; you must have the wiring and coding completed for the first four experiments by the end of week two. Your answers to experiments 1-4 will be checked on Monday, 07 September. Full credit will only be given if the questions and answers are completed in your handwriting in full sentences.

1. Assuming that you are using an 880 Ohm resistor on an LED, what is the current flow through it if you attach it to a 9 volt battery?
2. What is the code word in Experiment number 1 that tells you to enter a time for the LED to stay lit?
3. How is time measured in code?  
     
   The Arduino Board has an LED on it. To which pin is it connected?
4. How do you know which pins in the switch to connect in order to properly install it in a circuit?
5. Why do you need a “pull down resistor” in Experiment #1 to install the switch?
6. Where is this type of switch used?
7. Why do we call the switch in Experiment number 2, a “momentary switch”?
8. What is the difference between analog and digital?
9. Why is experiment number 4 called a “breathing LED?”
10. Write the binary code for 200 using only ones and zeroes.
11. Read the section in your SunFounder guide to “Pulse width modulation” and fill in the blank. Pulse Width Modulation is a technique for getting \_\_\_\_\_\_\_\_\_ results with \_\_\_\_\_\_\_\_\_\_\_\_\_ means.
12. What is a “square wave”?
13. The duration of time that the current is on in experiment 4 is called the \_\_\_\_\_ \_\_\_\_\_\_\_\_\_.